

# Unpacking Social Complexity and Causal Ambiguity: Lessons from Advanced Semiconductor Materials Lithography

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**Abstract.** A resource-based view of the firm posits that a key to organizational success rests in the inimitability of its resources. This analysis explores this proposition based around an informative, evidence-based non-fiction film exploring the nature of the competitive advantage enjoyed by Dutch semiconductor equipment maker Advanced Semiconductor Materials Lithography (ASML). Utilizing a 19-minute documentary made by CNBC as its foundation, this analysis illustrates the resource-based view of the firm. Reaction is generally positive to the documentary because it is inherently interesting and illustrates concepts and real-world situations related to the inimitably component of the resource-based view. A handout with discussion prompts that can use while watching the film to guide viewer attention to the key components of the RBV theory is provided. Additionally, a plan, which includes an overview of the ASML documentary with a scene-by-scene breakdown and answers to handout discussion prompts, including where the answers are found in the documentary, is also attached. By investigating ASML, this purpose of this analysis is to better understand the impact of social complexity and causal ambiguity on organizational success.

**Keywords:** resource-based view, documentary, inimitability, causal ambiguity.

## 1. Synopsis of the Analysis

Why some firms outperform others, particularly over time, is one of the central questions in international business and management strategy in general. The CNBC-created documentary “Why the World Relies on ASML for Machines that Print Chips” can be used to analyze this central question from the resource-based view (RBV) of the firm perspective. The resource-based view of the firm is a powerful tool for the analysis of competitive advantage (Barney 1991, 1995) and is widely taught in undergraduate international business, strategic management, and principles of management classes.

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Advanced Semiconductor Materials Lithography (ASML) is a Dutch semiconductor equipment manufacturing company. Built around a complex global network, they are the world's leader in the design and manufacture of extreme ultraviolet (EUV) lithography machines, a critical component of the manufacture of chips that power the modern economy. They print the pattern of the complex circuitry on chips that make possible the smart phones, cars, data centers and other critical aspects of modern society. ASML is the only company operating at the cutting edge of this technology. This analysis is designed to supplement lecture and textbook material on RBV. It uses a 19-minute CNBC documentary, available free at YouTube (<https://www.youtube.com/watch?v=iSVHp6CAyQ8>), to explain and illustrate for students the nature of ASML's competitive advantage in the global marketplace. Applying international business theory allows the class facilitator to take the abstract concepts underlying the RBV and make them real for students, all while discussing the inherently interesting topic of how the foundational technologies that power our lives come about. Giving students the opportunity to analyze how the materials they are studying are deployed by watching an actual organization enhances a deep approach to learning by using both verbal and nonverbal cues (Wickramasekara & Bamberly 2013).

## **2. Synopsis of the RBV**

The resource-based view of the firm is an analytical tool that explains why some firms are more profitable than others, particularly over extended periods of time. The RBV posits that firms possess idiosyncratic resource bundles that enable them to outperform others (Barney 1991, 1995). This stands in contrast to the Industrial Organization Economics view of competitive advantage, known most prominently as Porter's Five Forces Model, which posits that advantage rests at the industry level rather than the firm level (Porter 1981). The importance of the resource-based view is reflected in its inclusion in many undergraduate international business texts (cf., Hill 2023), strategy textbooks (cf., Dess, McNamara, & Eisner 2024), and management principles textbooks (cf., Bateman & Konopaske 2023).

According to the RBV perspective, organizational success comes from a firm's resources and how they are deployed. Organizations exploit external opportunities by deploying both tangible and intangible resources. Tangible resources are comprised of physical objects that can generally be acquired on the open market, such as plants, equipment, human resources, natural resources, and capital. Intangible resources, on the other hand, are those that are noncorporeal in nature, such as goodwill, brand equity, intellectual property, network alliances, collaborations, and other social relationships. These intangible resources are generally built over the long run and are significantly more difficult to acquire and